

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
IDENTIFICATION FORM	I
APPROVAL FORM	ii
TABLE OF CONTENTS	iii
ABBREVIATIONS AND ACRONYMS	v
 1.0 INTRODUCTION	 1
1.1 BACKGROUND	3
1.1.1 History	3
1.1.2 Conceptual Hydrogeologic Model	3
1.2 EXISTING AIR STRIPPER TREATMENT SYSTEM	5
1.3 DESIGN OBJECTIVE	5
1.4 NEWMARK WELLFIELD EXTRACTION WELL SYSTEM DESIGN	8
1.4.1 Scope and Objective	8
1.4.2 Proposed Extraction Well System	8
1.4.3 Proposed Extraction System Limitations	9
1.5 BASIS FOR PROCESS DESIGN AND COMPONENT SIZING	11
 2.0 LPGAC COMPONENT DESCRIPTION	 13
2.1 EXTRACTION WELLS	13
2.2 INFLUENT PIPELINE	13
2.3 LPGAC ADSORPTION SYSTEM	15
2.4 BACKWASH SYSTEM	20
2.5 TREATMENT SYSTEM BYPASS	20
2.6 CHLORINATION SYSTEM	21
 3.0 SITE WORK	 22
 4.0 ELECTRICAL INSTRUMENTATION AND CONTROLS	 24
 5.0 TREATMENT SYSTEM SAMPLING STRATEGY	 26
 6.0 OPERATION AND MAINTENANCE MANUAL	 27
 7.0 CAPITAL AND OPERATION AND MAINTENANCE COST ESTIMATES	 28
 8.0 BIBLIOGRAPHY	 32

APPENDICES

APPENDIX A	Operational Data
APPENDIX B	Summary of Groundwater Analyses Results
APPENDIX C	Design Calculations/Graphs
APPENDIX D	LPGAC Vendor Design Information
APPENDIX E	Chlorination System and Flowmeter Design Information

LIST OF TABLES

	<u>Page</u>
Table 1-1 Existing Air Stripper Data	6
Table 1-2 Actual Operational Data of Existing Air Strippers	7
Table 1-3 Imaginary Particle Locations for Extraction Scenarios	12
Table 1-4 Summary of Model Runs	14
Table 1-5 Extraction Scenarios for Newmark Wellfield Remedial Design	17
Table 2-1 Existing and Proposed Extraction Wells	27
Table 2-2 Design Basis for LPGAC System	29
Table 2-3 Estimated Loading Rates to the LPGAC System	31
Table 2-4 Design Criteria for Other LPGAC Components	32
Table 5-1 Proposed LPGAC Treatment System Sampling Procedures	39
Table 7-1 Water Treatment Cost Estimate	42

LIST OF FIGURES

	<u>Page</u>
Figure 1-1 Newmark OU Plume Location Map	2
Figure 1-2 MODFLOW Run 63A - Pathline Plot and Extraction Well Locations	10